

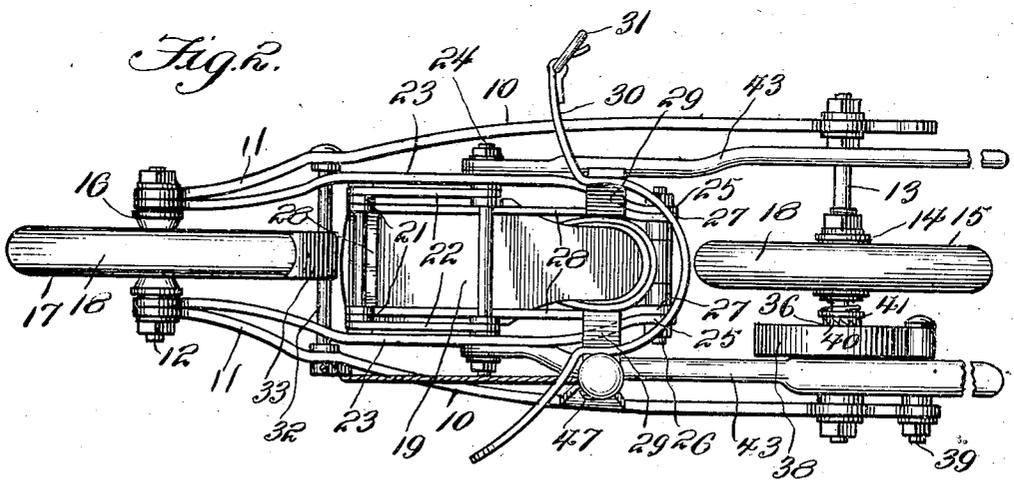
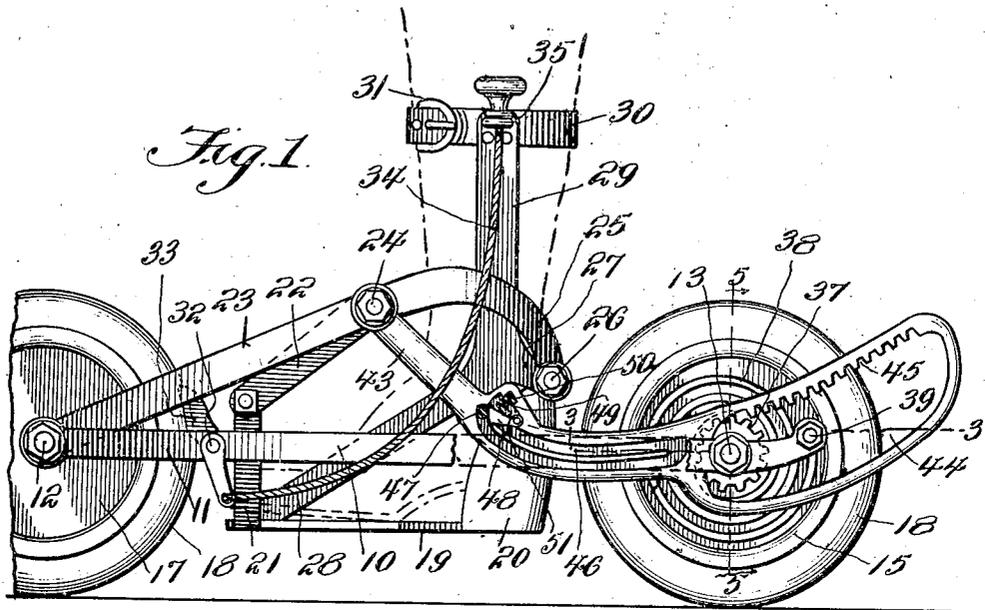
C. A. NORDLING.
SKATE.

APPLICATION FILED AUG. 23, 1912.

1,070,168.

Patented Aug. 12, 1913.

2 SHEETS-SHEET 1.



Witnesses

J. L. Wright
L. O. Parker

Inventor

Charles A. Nordling

Victor J. Evans

Attorney

UNITED STATES PATENT OFFICE.

CHARLES A. NORDLING, OF SUISUN, CALIFORNIA.

SKATE.

1,070,168.

Specification of Letters Patent. Patented Aug. 12, 1913.

Application filed August 23, 1912. Serial No. 716,688.

To all whom it may concern:

Be it known that I, CHARLES A. NORDLING, a citizen of the United States, residing at Suisun, in the county of Solano and State of California, have invented new and useful Improvements in Skates, of which the following is a specification.

The invention relates to skates, and more particularly to the class of roller skates.

The primary object of the invention is the provision of a roller skate in which the wheels thereof will be rotated on pedal action by the feet of the user, thereby avoiding the necessity of excessive exertion on the part of the skater.

Another object of the invention is the provision of a skate in which the wheels thereof will be forwardly rotated by foot leverage of the skater, thus avoiding the lifting of the skate from the ground or the dragging of the same thereover.

A further object of the invention is the provision of a skate which is simple in construction, capable of the production of high speed and that may be manufactured at a minimum expense.

Further objects will be in part obvious and in part hereinafter pointed out.

The invention accordingly consists in the construction of features, combination of elements and arrangement of parts which will be exemplified in the structure hereinafter set forth, and the scope of the application of which will be indicated in the following claims:

In the drawings:—Figure 1 is a side elevation of a skate constructed in accordance with the invention. Fig. 2 is a top plan view thereof. Fig. 3 is a fragmentary horizontal sectional view on the line 3—3 of Fig. 1. Fig. 4 is a view similar to Fig. 1 looking toward the opposite side of the skate with the parts in shifted position. Fig. 5 is a sectional view on the line 5—5 of Fig. 1.

Similar reference characters indicate corresponding parts throughout the several views in the drawings.

Referring to the drawings by numerals the skate comprises a frame including side bars 10 provided with forwardly converging ends 11 in which is mounted a front axle 12, while in the rear ends of the bars is mounted a rear axle 13, to which is fixed in any suitable manner the hub 14 of a rear ground wheel 15 and journaled upon the

front axle 12 is the hub 16 of a front ground wheel 17 the wheels being provided with suitable pneumatic, cushioned or solid tires 18, forming resilient treads therefor.

Arranged between the front and rear ground wheels 15 and 17 within the frame is a foot support comprising a base plate 19 formed at its rear end with an upstanding heel abutment plate 20, while at the toe portion of the base plate are formed vertical posts 21 to the upper ends of which are pivoted links 22, the same being connected to front forks 23 by means of pivots 24. The forks 23 at their forward ends are loosely engaged with the front axle 12 and their rear ends are provided with downwardly curved extensions 25 which are connected with the heel abutment plate 20 by means of a pivot 26. Thus, in this manner, the foot support will be held suspended from the front forks for receiving the foot of the user or operator of the skate.

Engaging the pivot 26 are ears 27 of a forwardly inclined rocking foot stirrup or pedal 28, which engages the toe portion of the foot of the user or operator of the skate, the stirrup being formed with vertical side uprights or extensions 29 having fixed thereto a fastening strap 30 provided with the usual buckle 31 whereby the said strap may be adjustably secured about the leg of the user or operator at a point below the calf of the leg.

Arranged forwardly of the foot support and engaged in the side bars 10 of the frame is a cross brace 32 which rigidly unites the side bars and serves as a pivot for a brake member 33 adapted to frictionally engage the tire 18 on the front wheel 17 for the braking of the skate when it is desired to minimize the speed of travel thereof or for bringing the skate to a standstill. Connected to the braking member 33 is a pull cord 34 the latter being extended upwardly and is trained through a guide eye 35 mounted in one side extension 29 of the stirrup or pedal near the upper end thereof and this pull cord is adapted to be engaged by the hand of the operator or user when it is desired to apply the brake member.

Surrounding the rear axle 13 between the hub 14 of the rear wheel 15 and the side bar 10 adjacent thereto of the frame is a loose sleeve 36 to which is fixed a rack gear 37 and also one end of a winding and unwinding

spring 38 the opposite end of which is fixed to a holding pin 39 mounted in the side bar of the frame adjacent thereto.

5 Formed at the inner end of the sleeve 36 is a half-clutch 40 with which is adapted to engage a companion half-clutch 41, the latter being slidably keyed upon the rear axle 13 between said sleeve and the hub 14 of the rear ground wheel, the half-clutch 41 being normally held in locking engagement with the half-clutch 40 on the sleeve 36 by means of coiled expansion spring 42 which surrounds the axle 13 between the half-clutch 41 and the hub of the rear wheel 15. Thus, in this manner, the sleeve will be sustained locked to the rear axle when the sleeve is being rotated in one direction under the tension of the spring 38 after the winding of the latter, but when the spring is unwound of the wheel is free for rotation independently of the sleeve, thus avoiding the impeding of the forward travel of the skate.

20 Connected with the pivot 24 mounted in the fork 23 are rearwardly extending downwardly bowed actuating arms 43, the same being provided in their rearmost end portions with elongated slots 44 accommodating the rear axle 13 and the sleeve 36 respectively at opposite sides of the rear wheel 15, one arm 43 being formed in the uppermost edge wall of the slot 44 with rack teeth 45 which are adapted to engage with the rack gear 37 on the lowering of the foot support, thereby causing the spring 38 to wind, but on the raising of the said foot support at the heel thereof the rack teeth 45 will be automatically disengaged from the gear 37 and held in such position so as to be free from the said gear until the foot support has been raised to normal position so that the tension of the spring 38 previously wound will effect the rotation of the rear wheel 15 for advancing the skate in a forward direction, the rack teeth 45 on one arm 43 being automatically engaged and disengaged from the gear 37 in a manner presently described.

In the outer side of one of the arms 43 is formed a cam slot 46 in which projects a stationary lug or pin 47, the same being mounted upon one side bar 10 of the frame, the said lug or pin 47 being designed to travel in the cam slot 46 for bringing the rack 45 into and out of engagement with the pinion or rack gear 37 and when the rack 45 is meshing with the gear 37 on the lowering of the foot support the spring 38 will become wound during the continued lowering movement of the said foot support, but on the raising of the latter the spring 38 is free to unwind for driving the rear wheel 15 for advancing forwardly the skate. It will be seen by the raising and lowering of the foot support the said spring 38 will be unwound and wound for the automatic propulsion of the skate.

At the forward end of the uppermost portion of the cam slot 46 is arranged a locking dog 48, the same being held protruded within the upper stretch of the cam slot 46 by means of a coiled expansion spring 49 mounted within a suitable counter seat 50, formed in the arm 43 it being understood of course that the said arm is provided with a suitable cut-away portion 51 to accommodate the dog 48 on the retracting thereof when the lug or pin 47 rides over the same, so as to prevent the back playing of the pin or lug into the upper stretch of the cam slot 46, and to cause the said pin or lug to advance into the lower stretch of the said cam slot during the movement of the arm 43 when operating the skate.

It is to be understood of course that the skate is to have the requisite weight so that the treads of the wheels thereof will be constantly sustained in contact with the ground and in this manner prevent the lifting of the skate during the pedal action by the operator or user for advancing the said skate. On the increasing of the pedal action by the user the momentum or speed of the skate will be materially increased, therefore, it is evident that the speed of travel of the skate may be varied to suit the fancy of the skater.

From the foregoing description, taken in connection with the accompanying drawings, it is thought that the construction and operation of the invention will be clearly understood, and therefore, a more extended explanation has been omitted.

What is claimed is:—

1. In a roller skate, a frame, front and rear supporting wheels journaled in the frame, movable foot supporting means arranged between the wheels and connected with the frame, energy storing means mounted about the rear axle and connected with the frame, means surrounding the rear axle and connected with the energy storing means and adapted to lock with the rear axle on releasing the energy storing means, and means connected with the foot support and the rear axle for automatically actuating the energy storing means on movement of the foot support in one direction.

2. In a roller skate, a frame, front and rear supporting wheels journaled in the frame, movable foot supporting means arranged between the wheels and connected with the frame, energy storing means mounted about the rear axle and connected with the frame, means surrounding the rear axle and connected with the energy storing means and adapted to lock with the rear axle on releasing the energy storing means, means connected with the foot support and the rear axle for automatically actuating the energy storing means on movement of the foot support in one direction, and means on the

frame and engageable with one of the connections for guiding it into and out of engagement with the rear axle.

3. In a roller skate, a frame, front and rear supporting wheels journaled in the frame, movable foot supporting means arranged between the wheels and connected with the frame, energy storing means mounted about the rear axle and connected with the frame, means surrounding the rear axle and connected with the energy storing means and adapted to lock with the rear axle on releasing the energy storing means, means connected with the foot support and the rear axle for automatically actuating the energy storing means on movement of the foot support in one direction, means on the frame and engageable with one of the connections for guiding it into and out of engagement with the rear axle, and means mounted in the last-named connection in the path of movement of the said last-named means to assure the positive movement of the said connection on raising and lowering the foot support.

4. In a skate, a frame, front and rear

axles journaled in the frame, ground wheels carried by said axles, the rearmost wheel being fixed to the axle supporting the same, a sleeve loosely mounted upon the rear axle, a winding and unwinding spring fixed to the frame and to said sleeve, clutch connection between the sleeve and axle, a movable foot support arranged between the said wheels, a front fork pivoted to the front axle and to the foot support, arms pivotally connected to the front fork and having slots loosely receiving the rear axle, rack teeth formed on one wall of the slot in one of said arms, a cog wheel fixed to the sleeve and engageable with the rack teeth, and means carried by the frame and engageable with the arm having the rack teeth for bringing the said rack teeth into and out of engagement with the cog gear on the raising and lowering of the foot support.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES A. NORDLING.

Witnesses:

JOSEPH HAWKINS,
LOUIS ROOS.